March 1 Deadline Set for MTBI Summer Research Program
By Berylene Rogers
Los Alamos National Laboratory

Opportunity knocks for 30 college juniors, seniors and graduate students. The Mathematical and Theoretical Biology Institute (MTBI) is accepting applications for its unique eight-week summer research program. Those students chosen will spend a summer working alongside world-class scientists and engineers at Los Alamos National Laboratory (LANL), one of the nation's premier research laboratories. The 2004 program will be held June 19 through Aug. 14.

The MTBI provides minority undergraduate and graduate students research experiences that combine mathematics, statistics and social and natural sciences, especially the application of mathematics to biology. To be eligible, students must be majoring in math, biology, or a related field and have completed at least one year of calculus.

Located in the Jemez Mountains of Northern New Mexico, LANL is situated in the midst of several Indian pueblos and only 35 miles from historic Santa Fe. In addition to working amid breath-taking vistas of mountains and canyons, each student receives airfare (up to $500) to New Mexico, room and board, and a $3,000 stipend.

Founded in 1996 by Carlos Castillo-Chavez at Cornell University, MTBI's goal is to significantly increase the number of minority PhDs and MAs. Over the past eight years 204 students have participated, and 123 have gone on to graduate school, while 30 have completed their master's degree. Currently, 52 are in doctoral, 19 in masters and 8 in professional programs (medical and business).

"There is limited diversity in the scientific, industrial and academic enterprise. We have the best graduate programs in the world, and yet there is almost no participation by US minorities (and US students generally) in the mathematical sciences. Our nation's position of leadership in science and technology will be lost if we do not engage our own students in research," Castillo-Chavez said.

A natural-born mentor, this Mexico native makes it sound easy. "Once a student has worked alongside professional researchers, the mystique is removed. That's what the MTBI does," he said.

Students spend four weeks attending classes and working on mini projects. The last four weeks are devoted to research. They complete a group research project (on a topic of their choosing) and produce a written report, an oral presentation and a poster describing their research. Past research subjects include bipolar disorder, spread of rumors, HIV epidemics, immunology of tuberculosis, small-pox and homeland security, bulimia dynamics, diabetes and conservation biology (monarch butterflies).

Participants have published 79 technical reports and won awards from the American Mathematical Society, Mathematical Association of America and Society for the

Advancement of Chicanos and Native Americans in the Sciences. MTBI alumni have made more than 20 presentations at national meetings of the Society for Industrial and Applied Mathematics.

David Murillo, a Cornell graduate (mechanical engineering, December 2002) from Van Nuys, Calif., has attended the summer institute twice. "The MTBI is a powerful and life-altering experience. It has changed the way I look at my life and has prompted me to pursue a career in graduate studies that I would not have otherwise," he says.

The MTBI was held at the Center for Nonlinear Studies at LANL in 2003. Tom Meyer, LANL's Associate Director for Strategic Research, is an enthusiastic supporter. "A research assignment at a national lab can be a special experience. Students get to bump elbows with some of the best scientists in their field and see state-of-the art science applied to solving problems of national importance," says Meyer, a former college professor and current institutional diversity champion whose responsibilities include the Center for Nonlinear Studies.

Applications for the 2004 MTBI Summer Research Program are encouraged from Latino, African-American, Native American and other minority students. Application deadline is March 1, 2004. Admission decisions will be announced March 15. To apply online, go to the institute's web site at http://math.asu.edu/~mtbi/.

The program has received support from Cornell University, National Science Foundation through its Research Experiences for Undergraduates (REU) program, National Security Agency, Sloan Foundation and Los Alamos T-Division. MTBI's move to Arizona State University means that ASU's Provost Office and LANL will become the major sources of summer funding. Other partners include the Santa Fe Institute, Cornell University, University of Michigan's Center for Statistical Genetics, Los Alamos High School and mathematics departments at the University of Arizona, Cal State Poly at Pomona, University of Iowa, Howard University, University of New Mexico, and New Mexico State University.